WHAT IS CLAIMED IS:

1. A method for adapting the number of encoded bits produced by a codec to a system target bit-rate, comprising:

determining if the system target bit-rate is such that bits-per-macroblock is less than a predetermined number,

if not,

setting the frequency at which intra-coded frames are sent to a first predetermined frequency range,

allocating bits between intra-coded frames and inter-coded frames according to a first predetermined factor, and

controlling quantizer step sizes for the intra-coded and inter-coded frames,

if so,

setting the frequency at which intra-coded frames are sent to a second predetermined frequency range that is lower than the first predetermined frequency range, unless there is motion in more than a predetermined percentage of the macroblocks, in which case the sending frequency of the intra-coded frames is set to the first predetermined frequency range, and

setting to zero transform coefficients having a zig-zag index greater than or equal to a preset number in select intra-coded frame transform coefficient blocks.

2. A method as recited in claim 1, wherein the select intra-coded frame transform coefficient blocks include (i) each luminance block with a DC transform coefficient whose value exceeds a predetermined number and (ii) each high-activity block wherein the total absolute quantized level in select transform coefficients is less than a preset fraction of the total absolute quantized level in all of the transform coefficients in that block.

3. A method as recited in claim 1, wherein the controlling of the quantizer step sizes comprises setting the quantizer step size for a particular type of frame to the average value used over the last frame of the same type, and adjusting the quantizer step size for the current frame of that type by comparing a partial bit-rate for that frame with a bit-rate range.

4. A method as recited in claim 1, further comprising maintaining a count of the actual bits used per frame, and, if the accumulated bit count exceeds a bit budget for a typical inter-coded frame, skipping the encoding of the next inter-coded frame.

5. A codec, comprising:

an encoder that includes a first plurality of variable parameters including x-search window, y-search window, skip mode protection, half-pel subsample factor, full-pel subsample factor, use half-pel, transform truncation, and motion estimation method for specifying a plurality of different settings at which a coding algorithm applied to uncoded video data can operate; and

a decoder that includes a second plurality of variable parameters including transform algorithm, chroma skipping, and frame display skipping for specifying a plurality of different settings at which a decoding algorithm applied to coded video data can operate;

wherein the codec is configured such that, during operation, at least one of the coding algorithm and decoding algorithm is able to dynamically change its operating setting according to available computational resources in response to actual complexity measurements performed at run-time.

6. A codec as recited in claim 5, wherein the plurality of different settings at which the coding algorithm can operate is 9.

7. A codec as recited in claim 5, wherein the plurality of different settings at which the decoding algorithm can operate is 5.

8. An encoder, comprising:

a plurality of variable parameters including x-search window, y-search window, skip mode protection, half-pel subsample factor, full-pel subsample factor, use half-pel, transform truncation, and motion estimation method for specifying a plurality of different settings at which a coding algorithm applied to uncoded video data can operate;

wherein the encoder is configured such that, during operation, its coding algorithm is able to dynamically change its operating setting according to available computational resources in response to actual complexity measurements performed at run-time.

9. A decoder, comprising:

a decoder that includes a plurality of variable parameters including DCT algorithm, chroma skipping, and frame display skipping for specifying a plurality of different settings at which a decoding algorithm applied to coded video data can operate;

wherein the decoder is configured such that, during operation, its decoding algorithm is able to dynamically change its operating setting according to available computational resources in response to actual complexity measurements performed at run-time.

10. A video conferencing system, comprising:

a plurality of codecs configured to share the system's computational resources, each codec comprising

an encoder that includes an associated set of parameters including x-search window, y-search window, skip mode protection, half-pel subsample factor, full-pel subsample factor, use half-pel, transform truncation, and motion estimation method for specifying a plurality of different settings at which an associated coding algorithm applied to uncoded video data can operate, and

a decoder that includes an associated set of parameters including DCT algorithm, chroma skipping, and frame display skipping for

specifying a plurality of different settings at which an associated decoding algorithm applied to coded video data can operate,

wherein each of the codecs is configured such that its algorithms in use dynamically adapt their operating settings during operation according to the system's available computational resources in response to actual complexity measurements performed at run-time.

11. In an arrangement comprising a plurality of clients and at least one server, a device configured to respond to a particular client for which a region-of-interest is identified in a video to be delivered to that client, the device comprising:

a resource-allocation module configured to assign more bits to coding video data in the region-of-interest, and to assign less bits to coding video data outside of the region-of-interest by setting a quantizer step size for the video data outside of the region-of-interest to a value that increases as the distance from the center of the region-of-interest increases;

a scalable complexity module configured to process the region-of-interest video data before processing video data outside of the region-of-interest; and

a transcoding module configured to transcode the video for that client in accordance with that client's display properties.

12. In an arrangement as recited in claim 11, wherein the device is further configured to reorder a bit-stream representing the video to be delivered to the particular client by placing the region-of-interest data first or by adding forward error correction to the region-of-interest.

13. In an arrangement as recited in claim 11, wherein the region-of-interest for a particular client comprises one or more regions-of-interest defined by a user of the particular client.

14. In an arrangement as recited in claim 13, wherein the user of the particular client identifies the one or more regions-of-interest by sending a request, along with

the properties of the one or more regions-of-interest to the server through a back channel.

15. In an arrangement as recited in claim 11, wherein the device is incorporated in the server and serves the particular client.

16. A machine-readable medium embodying a program of instructions for directing a codec to adapt the number of encoded bits produced by the codec to a system target bit-rate, the program of instructions comprising:

(a) instructions for determining if the system target bit-rate is such that bits-per-macroblock is less than a predetermined number;

(b) instructions for setting the frequency at which intra-coded frames are sent to a first predetermined frequency range;

(c) instructions for allocating bits between intra-coded frames and inter-coded frames according to a first predetermined factor;

(d) instructions for controlling quantizer step sizes for the intra-coded and inter-coded frames;

(e) instructions for setting the frequency at which intra-coded frames are sent to a second predetermined frequency range that is lower than the first predetermined frequency range, unless there is motion in more than a predetermined percentage of the macroblocks, in which case the sending frequency of the intra-coded frames is set to the first predetermined frequency range; and

(f) instructions for setting to zero transform coefficients having a zig-zag index greater than or equal to a preset number in select intra-coded frame transform coefficient blocks.

wherein instructions (b), (c) and (d) are executed only if it is determined that the system target bit-rate is such that bits-per-macroblock is not less than a predetermined number, and

wherein instructions (e) and (f) are executed only if it is determined that the system target bit-rate is such that bits-per-macroblock is less than a predetermined number.

17. A machine-readable medium as recited in claim 16, wherein the select intra-coded frame transform coefficient blocks include (i) each luminance block with a DC transform coefficient whose value exceeds a predetermined number and (ii) each high-activity block wherein the total absolute quantized level in select transform coefficients is less than a preset fraction of the total absolute quantized level in all of the transform coefficients in that block.

18. A machine-readable medium as recited in claim 16, wherein instruction (d) comprises setting the quantizer step size for a particular type of frame to the average value used over the last frame of the same type, and adjusting the quantizer step size for the current frame of that type by comparing a partial bit-rate for that frame with a bit-rate range.

19. A machine-readable medium as recited in claim 16, further comprising:

(g) instructions for maintaining a count of the actual bits used per frame, and, if the accumulated bit count exceeds a bit budget for a typical inter-coded frame, skipping the encoding of the next inter-coded frame.